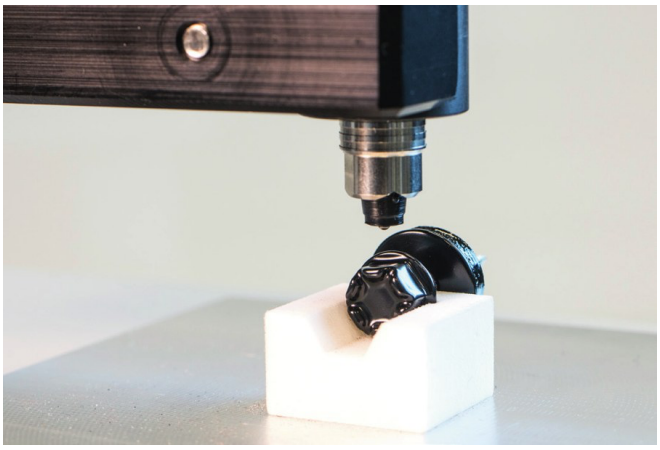
COATING THICKNESS

The durability of the paint coating is the most important factor affecting the long-term performance of a roofing screw. The paint coating must withstand the climatic stress of the operating environment as well as the mechanical stress caused by installation. According to standard SFS-EN 1090-2 + A1, the corrosion resistance of the roofing screw must correspond to the corrosion resistance of the steel roof sheeting. Steel roof sheeting is made of galvanised steel with a primer and a topcoat, so the coating of the roofing screw must be of the same kind.



PURPOSE OF THE TEST

The test examined the paint coating thicknesses of roofing screws from different screw suppliers.

TEST EQUIPMENT

Coating thickness gauge, in which the measurement is based on magnetic induction.

HOW THE TEST WAS CARRIED OUT

Roofing screws from 8 different screw suppliers were examined. From every manufacturer, 10 sample screws were tested, chosen at random from a single retail pack. The coating thicknesses were measured on each of the six flats of the screw head, at the centre of the flat. The result for each screw is the average of the coating thicknesses measured on its six flats. The measurement results were recorded in a measurement log.

COATING THICKNESS MEASUREMENT RESULTS

With the exception of one screw supplier, the screws were galvanized and topcoated. In the screws of one supplier, a Xylan coating was used in place of the zinc layer.

A cut test showed that all the other screws tested, apart from the KINGI® roofing screw, have only one layer of paint, that is, the topcoat. According to the screw suppliers, the roofing screws have a zinc layer 7 to 12 microns thick. The average total coating thickness of these screws is 64,13 µm, of which the paint thickness is about 53,84 µm.

The KINGI® roofing screw has several layers of paint. The Durabl3 coating of the KINGI® roofing screw consists of zinc plating, a silane pretreatment and primer and topcoat layers. KINGI® is the only roofing screw that meets the requirements of corrosivity category C4 according to DIN 55634. The average total coating thickness of the KINGI® roofing screw is 136,76 µm, of which the zinc layer is at least 12 µm.

Manufacturer	Coating thickness (µm)										Average	Avg.
Manufacturer 1 / RR33	92,34	91,43	89,81	82,78	80,78	93,4	85,43	75,61	91,85	82,53	86,596	53,84
Manufacturer 2 / RR33	38,43	56,49	39,4	36,67	42,23	45,34	44,19	46,15	45,67	41,25	43,582	
Manufacturer 3 / RR33	65,81	61,94	66,85	78,97	85,41	103,8	95,3	89,1	72,58	83,37	80,313	
Manufacturer 4 / RR29	30,15	34,53	25,24	35,33	32,39	34,73	30,9	41,69	31,08	22,99	31,903	
Manufacturer 5 / RR33	38,87	47,13	46,6	45,13	48,15	54,38	57,3	62,15	35,79	45,4	48,090	
Manufacturer 6 / RR29	45,99	41,94	48,76	45,87	42,97	47,02	42,62	50,14	44,72	39,18	44,921	
Manufacturer 7	41,5	40,95	41,84	42,2	38,7	39,85	41,07	46,23	43,15	39,6	41,509	
KINGI®	120,7	120,7	120,9	133,9	120,7	126,8	120,1	137,7	129,9	126,2	125,760	

The results in the table were obtained with a Fischer Deltascope® FMP30 coating thickness gauge.